Environmental Restoration Contractor **ERC Team**

Meeting Minutes Cover Sheet 090257

Please find attached the Open Meeting Minutes from the Groundwater/Vadose Zone Integration Project of June 4, 2001.

If you have any comments or changes to these minutes, please reply to this email and your comments will be incorporated into the next meeting minutes.

Environmental Restoration Contractor **ERC Team**

Meeting Minutes 090257

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SUBJECT **GROUNDWATER/VADOSE ZONE INTEGRATION PROJECT MEETING - JUNE 4, 2001**

TO Distribution

FROM Michael J. Graham, Groundwater/Vadose Zone Integration Project Manager

DATE June 19, 2001

ATTENDEES
See Attached List

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Attendees
GW/VZ Distribution List
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NEXT GW/VZ INTEGRATION PROJECT OPEN MEETING:

Next Meeting:	Monday, July 2, 2001 – 1-3 p.m.
Location:	Bechtel Hanford, Inc., Assembly Room (Badging Required)
Local Call-In Number:	(509) 376-7411
Toll Free Call-In Number:	(800) 664-0771

MEETING MINUTES:
A Groundwater/Vadose Zone (GW/VZ) Integration Project Open Meeting was held on June 4, 2001, in Richland, Washington, at the Bechtel Hanford, Inc. (BHI) Building, Conference Room 2D01.

PROJECT REPORT:

Schedule Update (Michael Graham)
Looking at the Project Summary Schedule, the 200-PW-1 Work Plan has been moved to December 31, 2001.

200 Area Update (Bruce Ford)
We are going into the field to do characterization work at the TW-1 and TW-2 Operating Units (OU). TW-1 has scavenged waste sites, and TW-2 has tank waste sites. The Work Plan has been approved and will be on the website. I have attached three diagrams, which show the locations of the sites where we will be doing work. (Attachment 1)

At each of the three waste sites, we will drill one borehole through the center to just above water table. The extent of contamination will be determined. This work is scheduled to begin the week of June 15, 2001. This is the highest radioactivity drilling we've done since the early 1990s. We accelerated this work scope so this characterization work would coincide with the tank farm work. Some of the data could support the work Tony's doing.

QUESTION: Do you expect the contamination level to be high?

ANSWER: The 216-B-7A site will be the hottest drilling.

QUESTION: What are the principal contaminants?

ANSWER: Plutonium, cesium, and technetium-99.

QUESTION: Do you expect this to be leakage?

ANSWER: No. These are sites that actually received tank waste directly into the ground.

QUESTION: Why do you expect it to be hot?

ANSWER: The geophysical logging data from these cribs shows them to have high levels of radioactivity, especially in the upper portions of the waste sites.

The next figure, Figure A-2, shows the location of a single borehole at the 216-B-7A crib that will be drilled down to just above the water table. The crib is located just north of the B Tank Farm. These are the samples in which Science & Technology (S&T) is interested. In preparation for sampling, we made sure we had an integrated approach. John Zachara is going to take samples to look at plutonium mobility. We plan on drilling in August.

Figure A-3 shows the two field operations to be performed at the 216-B-3B trench. Along the axis of the trench, you can see the five symbols that show boring locations for five drive casings that will go down to 60 feet. We will follow up with geophysical logging. Our focus will be on identifying the portion of the trench with the highest concentrations. There has been interest in integrated sampling needs for this location. So, we will be collecting additional soil samples, particularly for technetium 99 beneath the crib. The drilling campaign at each location is scheduled to run for four weeks.

<u>Carbon Tetrachloride Update</u> (Bruce Ford/Virginia Rohay)
We have three activities to status today – the work in the OU investigation at 200-PW-1, Z-9 well deepening and Plutonium Finishing Plant (PFP) drilling, and Soil Vapor Extraction (SVE).

For 200-PW-1, the milestone has been moved to end of this calendar year. The reason for that is to expand the information in the Work Plan to include investigation of disposal sites and look into the characterization of the dispersed plume, to understand other sources of carbon tetrachloride. The Data Quality Objective (DQO) process began about a month ago. Virginia Rohay is the lead for us on that; her work cross-cuts groundwater investigations as well as vadose zone investigations. The development of those models is complete and development of the DQO document should be complete later this month. The Work Plan is going to be out by the end of the year.

The SVE system is started and will run for three months at Z-1A, then three months at Z-9. There are two drilling operations planned for this year. We are deepening two wells at Z-9. Both are at approximately 100 feet, and we are going approximately 100 feet deeper. Soil vapor samples are being taken during drilling. The first sample was taken at 105 feet and had a carbon tetrachloride concentration of 5.5 parts per million (ppm). The highest concentration was 174 ppm at 122 feet. At 185 feet, vapor concentration was 20-21 ppm.

Based on the profile, we are going to build the well with a screen extending 30 feet below the bottom of the Plio-Pleistocene layer. In early July, we will extract from that well. We also took soil samples for analytical work.

QUESTION: Were you surprised by that profile?

ANSWER: Typically, concentrations are higher near the Plio-Pleistocene layer.

QUESTION: Did you see any free product?

ANSWER: No free product has been observed. The samples have a 45-day turn around. I think we'll get results by the end of June or mid-July.

On the second well, we will use the same strategy. We'll characterize soil vapor as we drill. That should be finished in mid-June.

We are planning the drilling of the well within the PFP protected area. Drilling is scheduled to begin August 13, 2001. We are still in planning stages.

Ecological Assessment Update (Bruce Ford)

The 200 Remedial Action project has submitted a remedial investigation report for the Gable Mountain B Pond Operable Unit. Based on the comments we received from Washington State Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA), additional work is needed to evaluate ecological resources and data gaps. The project went through the Tri-Party Agreement (TPA) change process and rescheduled delivery of the feasibility study to March 2002, in order to work in the intervening time period on an ecological assessment. There are two phases to the work. Phase I involves gathering information that already exists, evaluating the information, identifying data gaps, and establishing remedial action objectives at a high level. A draft report will be out at the end of this calendar year.

Phase II is a more focused look and includes an ecological DQO for the plateau as a whole as well as Gable Mountain/B Pond. There may be soil sampling that we need to do to supplement our understanding as well as DQO focused on B-pond that would feed into the feasibility study due in March 2003. It's still early in the developmental process, and there is time for adjustments and suggestions as to how we implement this work. We are just starting to gather information for the baseline. Public stakeholder briefings have been started. We visited with the Yakama Nation, Washington State Department of Fish and Wildlife, and the Natural Resources Trustee Council. We are looking for feedback.

QUESTION: Have you had any meetings in the Tri-Cities?

ANSWER: We did have a meeting with the Natural Resources Trustee Council last week. We offered the first briefings to stakeholders that have shown an interest in this topic to date.

QUESTION: Is it possible that the Hanford Advisory Board (HAB) could be briefed?

ANSWER: I'm sure we can set something up. Bryan Foley is the U.S. Department of Energy (DOE), Richland Operations Office (RL) representative on this.

QUESTION: You are going to get a baseline after all production has long been stopped?

ANSWER: That is our approach. We are going from 1994 to present to establish an understanding of what currently exists out there. We haven't worked out the details of how that information is going to be used.

QUESTION: Did you get any immediate feedback that might give you a focus as to where you ought to be looking?

ANSWER: No focused feedback, just general comments and concerns about how the information would ultimately feed into our documents and decisions. As we went through the materials, the audience realized we are very early in the process. They would like another briefing as we get further into the process.

QUESTION: Are you going to be looking at pre-1994?

ANSWER: No.

QUESTION: Seems like some stakeholders are essentially telling you that you ought to "bring me a rock".

ANSWER: We are trying to involve stakeholders early in the process and setting a path so we can get meaningful input along the way.

QUESTION: This has been going on for several years now. The only input is salmon. What else is out there that people have suggested you might be harming? The picture doesn't seem to be any clearer in the last few years than it was in 1989.

ANSWER: We haven't received any specific comments to date.

QUESTION (Sue Safford): Are there any written materials about the process available?

ANSWER (Bruce Ford): We can get you copies of the presentations and the white paper.

S&T Biological Fate and Transport Lessons Learned Update (Amoret Bunn)

Biological Fate and Transport is focusing on uptake and depuration of technetium-99 in aquatic organisms. We are looking at the data available for doing ecological risk assessments, and the technical database is where we are limited at Hanford. Biota history matching wasn't going well because we didn't have enough site-specific data. In literature, we found an article about a British Nuclear Fuels, Limited (BNFL) facility in Sellefield, and so we made some contacts over there about their discharges into the Irish Sea. We met with BNFL in May. We went over and made a presentation. They shared their issues. Since then, we have been exchanging information on their field monitoring. They looked at water, sediment, and biota all in the same place. Their research has shown us some ways to improve our research design as well. They are interested in the Groundwater/Vadose Zone Integration Project from a number of standpoints. For example, dealing with uncertainty with their tanks as well as overall System Assessment Capability (SAC) modeling. In two years, they have to produce a report similar to a performance evaluation. We have had a nice exchange of information. We also met with researchers from the Natural History Museum. We received some information on improving our design. The data are useful for improving models.

QUESTION: Do you have specific field activity planned with the low flow in the Columbia River?

ANSWER: There is a program this summer looking at the 300 Area. Technetium 99 is one of the contaminants of concern. We will be looking at media from the river and terrestrial as well. It will be

about a year before we get results.

QUESTION: The English are focusing on trout?

ANSWER: Their focus is more on invertebrates. They are finding concentrations of technetium in the Irish Sea due to disposal of about 19,000 curies a year from Sellafield. They don't have a problem with detection limits.

QUESTION: They know the locations where they can examine the invertebrates?

ANSWER: Right.

QUESTION: In two years, they produced more technetium than we did in 15 years?

ANSWER: Correct. The two studies should complement each other. There is a little problem extrapolating from a marine to a fresh water environment.

QUESTION: Do they have some fresh water lakes with some information?

ANSWER: Yes.

QUESTION: Have they observed injured invertebrates?

ANSWER: No. They might identify a threshold if they ever find injured invertebrates.

QUESTION: Regarding opportunities with the low flow in Columbia River, are there any plans?

ANSWER: Roger Dirkes runs the program. We need to talk to him to find out what he's willing to pick up. We are seeing water levels drop all over the place. Some of our pump-and-treats are going dry.

QUESTION: Does the low flow change system parameters? Are we getting a unique opportunity to observe something we otherwise would not have the opportunity to observe?

ANSWER: This year we don't have the river water intruding back in the landmass. There is more ground water coming out. We may have the opportunity to observe and sample some springs and creeks that otherwise might not be exposed.

The Department of Health and Ecology take samples along the Columbia River. That's one discussion we are going to have.

QUESTION: Do you have anything to say about human dose response studies these days?

ANSWER: That was not funded.

QUESTION: Wasn't there a study going on at the DOE - Headquarters (HQ)?

ANSWER (Mary Harmon): Nothing has come across my desk

Upcoming Central Plateau Workshop Update (Moses Jarayssi)
We are kicking off an effort by Ecology, EPA, and DOE tomorrow to understand and agree on exposure scenarios at the 200 Area. Next week, we will brief the HAB committee on the outcome of the workshop. We will prepare for another meeting to focus on technical issues. Tomorrow's focus is on understanding the needs and timing on assessments being done in the central plateau area. We will be talking about risk assessments in this meeting and will discuss assumptions that will have to be made.

RCRA Wells Update (Mike Thompson)
Agreement on the change package has been reached. M-24 requires up to 50 wells per year. Ecology and DOE were in a series of meetings for the last few months to determine the most important. The water levels are changing, and the gradients are changing so the old design is no longer optimum. We agreed to drill 11 wells this calendar year. All are in single shell tank farms.

SAC Assessment Update (Bob Bryce)
We completed shake down runs in mid-May and took some time off to make adjustments. We kicked off the initial assessment a week and a half ago. The plan is to be done with the calculations by mid-July. By mid-August, we will meet with folks and share the results. All the prepatory work seems to be paying off.

QUESTION: It's a stochastic analysis, isn't it?

ANSWER: Yes. We have done two full runs through the system with parameters selected from the distribution.

QUESTION: How long does it take?

ANSWER: It took four days to get through the vadose zone and four days for river. We ran those simultaneously. It takes several days per realization. There won't be hundreds of realizations, but it will give us a number.

QUESTION: You're discretely choosing parameters?

ANSWER: Yes. We're using a Latin Hypercube process to select parameters applied in a Monte Carlo stochastic simulation. Based on work done at the Waste Isolation Pilot Plant and Yucca Mountain, by 25 realizations you have a pretty good idea. It'll give us a good sense of things.

National Roadmap Update – June 6, 2001 (John Morse)
The agenda for this meeting is attached. It's by invitation only this Wednesday. It's a follow-on from the Idaho National Engineering and Environmental Laboratory (INEEL) workshop. They are trying to get this established as a national research initiative.

It's limited to about 25 or 30 people. They will be going over the whole program. We may have feedback from that later on.

COMMENT: I attended the INEEL meeting, and I would hope we would get a lot of feedback from the meeting in Seattle.

UPCOMING EVENTS (Michael Graham)
Please note that these Open Meetings are now once a month. Also, the HAB meetings are on the attached

calendar. The Semi Annual Report is going through the system. Edye Jenkins is onboard to help with that. We are trying to wrap up the In Situ Redox Manipulation (ISRM) barrier. Drilling should be complete this month. We are continuing work on 618-11. We are stretched in the field.

QUESTION: Did you get any comments from the United States Geological Survey (USGS) on the SAC Review?

ANSWER (Bob Bryce): Not yet. I haven't seen any written comments yet. Doug will let us know when he gets written comments. We'll meet when he has some written comments.

QUESTION: Are you planning to have discussions with Doug Sherwood soon?

ANSWER: We're planning to have follow-up discussions with Doug Sherwood. He wanted to wait until he got the USGS comments.

NOTES:
GW/VZ Web Site location: http://www.bhi-erc.com/vadose

If you have questions or comments, please contact Karen Strickland (509-372-9236) or Alison Kent (509-372-9192).

ATTACHMENTS:
1) Location of Planned and Existing Boreholes and Wells at the 200-TW-1 216-T-26 Crib, Location of Planned and Existing Boreholes and Wells at the 200-TW-2 216-B-7A&B Cribs, Location of Planned and Existing Boreholes and Wells at the 200-TW-2 216-B-38 Trench
2) GW/VZ Integration Project Six Month Look Ahead Calendar
3) Agenda, Forum For Federal and State Environmental Agencies, Tribes, and USDOE Supporting Science Organizations On Understanding the Vadose Zone Science, Technology and Impacts, June 6, 2001

ATTENDEES:

Marty Benski – Tri-City Caucus
Bob Bryce – PNNL
Amoret Bunn – PNNL
Dru Butler – BHI
Don Clarke – DEC
Bruce Ford – BHI
Mark Freshley – PNNL
Dib Goswami – Ecology
Michael Graham – BHI
Mary Harmon – DOE-HQ (by phone)
Doug Hildebrand – DOE-RL
Moses Jarayssi – BHI
Edye Jenkins – ERC
Alison Kent – BHI
Charles Kilbury – HAB
Tony Knepp – CHI
John Morse – DOE-RL
Gordon Rogers – HAB
Virginia Rohay – ERC
Sue Safford – Oregon Office of Energy (by phone)
Lou Soler – BHI
Mike Thompson – DOE-RL
Rob Yasek – ORP

Attachment 1

Figure 3-4. 216-T-26 Crib Borehole Location Map.

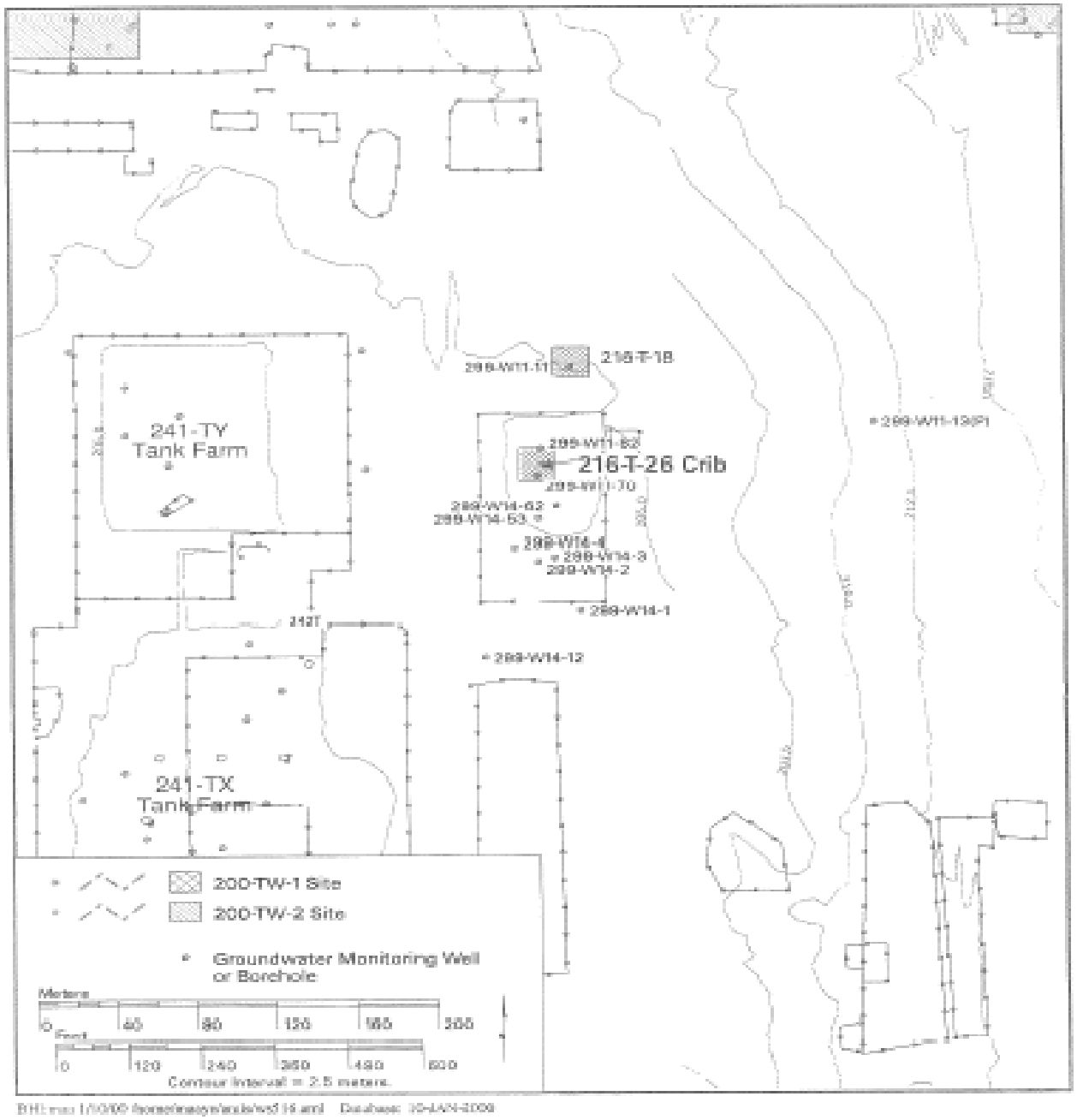


Figure 3-12. 216-B-7A&B Cribs Borehole Location Map.

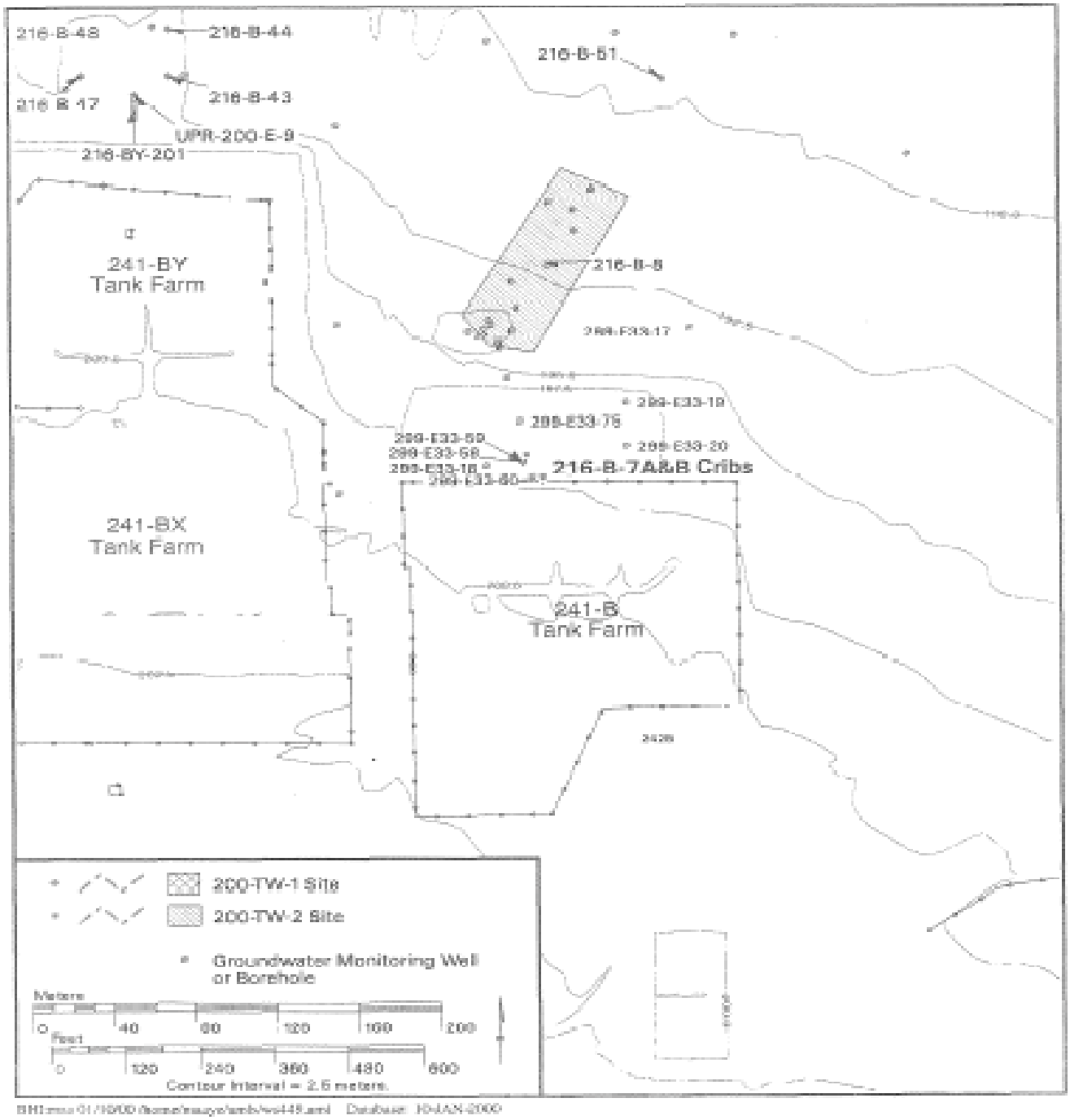
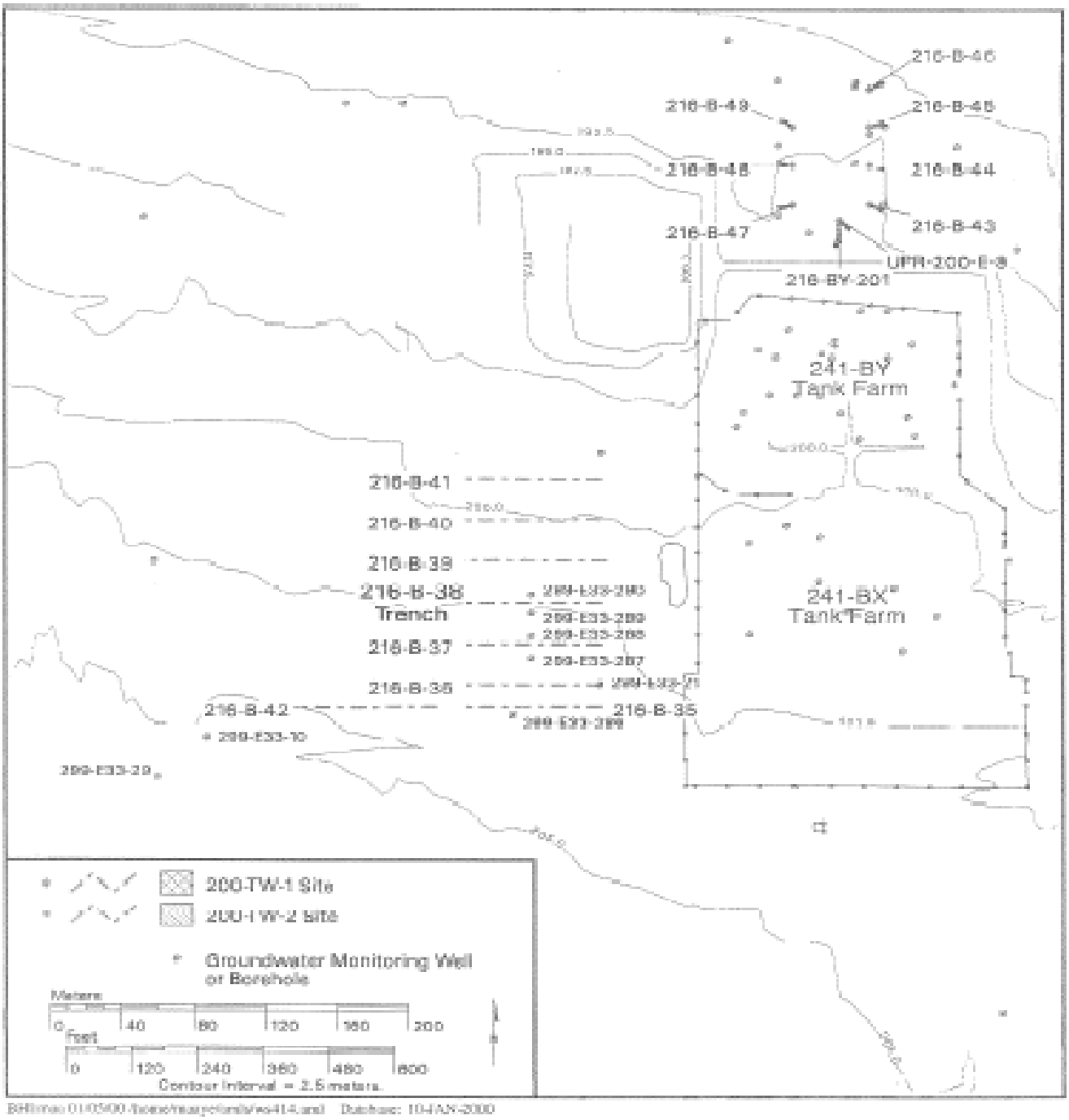


Figure 3-13. 216-B-38 Trench Borehole Location Map.



GW/VZ INTEGRATION PROJECT

JUNE 4, 2001 – NOVEMBER 5, 2001

FIVE MONTH LOOK AHEAD CALENDAR

June 4	GW/VZ Project Open Meeting BHI Conference Room 2D01 – 1-3 p.m. (Contact: Steve Sautter)
June 7-8	HAB (West Coast Hotel, Kennewick)
June 12	HAB-Plateau/River (Federal Building, Richland, WA)
July 2	GW/VZ Project Open Meeting BHI Assembly Room – 1-3 p.m. (Contact: Steve Sautter)
August 6	GW/VZ Project Open Meeting BHI Assembly Room – 1-3 p.m. (Contact: Steve Sautter)
September 4	GW/VZ Project Open Meeting BHI Assembly Room – 1-3 p.m. (Contact: Steve Sautter)
September 6-7	HAB (9:00 – 5:00 and 8:30 – 4:00, Seattle, WA)
September 26-28	IPEP Meeting (BHI Assembly Room, Richland, WA)
October 1	GW/VZ Project Open Meeting BHI Assembly Room – 1-3 p.m. (Contact: Steve Sautter)
November 5	GW/VZ Project Open Meeting BHI Assembly Room – 1-3 p.m. (Contact: Steve Sautter)
November 13-15	Technical Information Exchange (TIE) Workshop (Albuquerque, NM)

AGENDA

(A better-formatted version of this agenda is available at www.pacific-rim.org/vadose)

FORUM FOR FEDERAL AND STATE ENVIRONMENTAL AGENCIES, TRIBES, AND USDOE SUPPORTING SCIENCE ORGANIZATIONS ON UNDERSTANDING THE VADOSE ZONE SCIENCE, TECHNOLOGY AND IMPACTS

This meeting is in support of the DOE Complex-Wide Vadose Zone Science &Technology Roadmap
Hosted by USEPA Region 10 and USDOE
Bell Harbor Conference Center
Seattle, WA
June 6, 2001
9:00 AM - 4:00 PM

Invitees/participants include:

* USEPA, senior research managers
* USDOE, senior science and technology managers
* State Environmental Agencies, science policy leaders
* Tribal, science policy leaders
* Other federal agencies (e.g., USDOD, NSF, NIEHS, USGS)
* Universities, HSRC, and STAR grantees
* USEPA Region 10, science policy leaders

Purpose:

To provide an opportunity for discussion and dialogue on the "Department of Energy's DOE Complex Wide Vadose Zone Science and Technology Roadmap"

Welcome and opening remarks:

Ron Kreizenbeck, Acting Deputy Regional Administrator, EPA Region 10
Gerald Boyd, Assistant Secretary, DOE Office of Science and Technology
(Provides an opportunity for DOE to present the "big picture" on the subsurface initiatives to set the stage for more detailed presentations to follow.)

Panel Presentations:

Overview of DOE's Subsurface Initiatives - Skip Chamberlain, Director, DOE Subsurface Initiatives - Jim Wright, SubContaminants Focus Area Lead
(Key points for discussion - what are the subsurface initiatives that DOE is working on? What agencies, state and/or federal, is DOE working with on these initiatives, any successes to date?)

Vadose Zone Science and Technology Roadmap - Lorne Everett, IT Corporation (Key points for discussion: what is the Roadmap - broad overview noting objective, timeline and funding requirements? how and by whom was it developed? How does this effort tie in with other DOE subsurface efforts?)

USEPA's Perspective on vadose zone research - Tim Oppelt, EPA ORD (Key points: vadose zone challenges, ORD Strategic Plan and research planning, interagency and process opportunities for collaborative research.)

State&Tribal Perspective/Open Discussion - Steve Wassersug, GETF (Comments and expectations from northwest States, Tribes, research providers. Interaction between providers and users of research.)

Summary of morning session, outline of afternoon breakout sessions - John Barich or Doug Sherwood, EPA Region 10

LUNCH

Breakout Sessions:

Session A - Technology "Walk Through" for Vadose Zone Application - What applications, gaps, modeling issues are critical? A sample vadose zone case study. Lead by Clay Nichols, Lead Scientist, DOE, Idaho Operations Office, and EPA

Objectives:

* What are the technology gaps?

* Identify potential technologies and services required to address vadose zone uncertainties in schedules;

* How can we address the uncertainty of modeling in the vadose zone as it may impact existing site expectations

* How may these technologies be best evaluated and implemented quickly

* How does this tie in with current technology deployment efforts

Session B - Tying it All Together - A Vadose Zone Reach and Development Partnership - Lead by Tim Oppelt, EPA and Skip Chamberlain, DOE

Objectives:

* Identify potential partnerships between organizations that will help to define vadose Zone research requirements and identify opportunities for implementation and requirements; which organizations might like to assist in the implementation of the Roadmap and in what capacities? Which

organizations are already involved in vadose zone efforts, and how can we take the opportunity to better leverage those efforts?

* Identify requirements and actions to improve communications on vadose zone research; what currently exists, and how can it best be shared?

* Understand relationship, impacts and needs of states in the DOE Roadmap; where might the vadose zone Roadmap efforts impact the regulatory agencies, and how best can DOE involve those agencies and assure that the Roadmap effort is considerate of the regulatory requirements?

* Identify issues outside the DOE complex that may benefit the DOE and other organizations and help leverage other Vadose Zone efforts; what other organizations (e.g. DOD, private sector) and non-governmental groups/individuals should be involved in the Roadmap effort and receive its benefits, and how can we best secure their participation?

* Successful implementation of the Roadmap with frequent information exchange and dynamic input; how can we best develop an implementation plan that will provide for active participation and regular input, and what informal/formal mechanisms might be best to address implementation?

Report on Break out Sessions - Doug Serwood or John Barich, EPA, Skip Chamberlain, DOE

Closing Remarks - Ron Kreizenbeck, EPA, Tim Oppelt, EPA, Gerald Boyd, DOE